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Comment and PETITION FOR RULE MAKING: Distributed Internet Service Concentrators (a.k.a. ISP retailers)

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Summary

I am a citizen, consumer, and entrepreneur deeply concerned over the monopoly power wielded by Local Exchange Carriers offering Internet access. I hope to help the FCC formulate policy which will protect consumers and guarantee Internet connectivity which is affordable, accessible, and beneficial to the widest possible audience of people in the United States.

In this document I propose incentives for efficient use of the telephone network for Internet access, responding to the FCC NOI, **CC Docket No. 96-263:**

> "In the Notice of Inquiry, the FCC is asking for comment on how to create incentives for companies to make the most efficient use of the telephone network for Internet and other information services, and on the impact of different rate structures for ISPs on network usage and deployment of new technologies."

I have also composed selected quotes from the FCC Bandwidth Forum of January 23, 1997. For those readers already familiar with this material, reviewing it will be helpful as it sets the stage for my comment and petition.

(Since the quotes are taken from FCC material already recorded and published, they are not double spaced per FCC requirements for comment; double spacing begins with my comment and petition).

Relevant codified quotes from the
FCC BANDWIDTH FORUM, January 23, 1997:

Les Vadasz:

> "Despite the Telecommunication Act of 1996, the personal computer user is more of an after thought in all that happens when it comes to deploying network capabilities."

James Love:

> "... cost for ISDN are roughly about five bucks over what they are for POTS service ... that was presented in one of these tables for notice of performing rulemaking ... And then they say their direct cost of usage are roughly in the neighborhood of ten cents per hour, not per minute, but per hour ... So the pricing's way out of whack on ISDN."
>
> "One of my favorite examples is in Arkansas where Steve Sanders, who's a Ph.D. in physics and an MIT degree in engineering, runs a phone company down there. They have non-blocking switches. Everybody in the whole area can connect at the same time. They provide ISDN for $17.90 a month and it's flat rated. Plus, they throw in free Internet access just to sort of move the ISDN service into the market."

Stagg Newman:

> "Bill Gates was quoted recently ... as saying in the year 2000, 90 percent of all the users of the Internet will still access it over dial up modems over the telephone network at 28.8 kilobytes per second ... Unfortunately, our analysis is he's probably right."
>
> "Users want a flat rate because you don't want ... a meter ticking while you're doing applications."

Pat White:

> "The only problem I think right now ... is who's going to pay for it."

John Curran:

> "I can't think of a better way to decimate an industry than to establish an artificial form of cost recovery for these functions."
>
> "If we should make a mistake of trying to architect a ... particular solution on behalf of the entire industry ... we can safely predict that the robust entrepreneurial vision of the Internet won't be ... harnessed and in fact we'll lose that energy going forward."

"The Internet is an example of success in decentralization ... the Internet service community, and I mean thousands of entrepreneurial businesses, will explore every backbone model possible, will explore every access architecture. We will see a rich tapestry of these coming forth."

Peter Harter:

"Many companies are not just providing a wire and say here. Here you go. Here's your account. No, they're bundling value added services which consumers want and many companies are being very creative, very entrepreneurial."

"Creativity from the grassroots is probably a reasonable course of action in the area of universal service."

Mike Trest:

"Concerns about the LECs movement into the Internet service provider business ... is real ... years of regulatory protection have provided these LECs with economic powers which could be inappropriately used to restrain non-telco related ISPs ... [LECs complain] about congestion and yet Pacific Bell ... can send a mailing to every telephone subscriber in the state and offer them six months of free Internet dial up access."

Lee Bauman, VP of local competition for Pacific Bell:

"Our customers in California, both end users and ESPs, don't pay per minute of use for Internet access. And even the California Public Utilities Commission has agreed that line prices are set at about one half their cost."

"We can't compete with something that customers and competitors are using and having almost for free."

James Love:

"I brought an ad with me that was referred to earlier about Pac Bell saying order a second telephone line for $11.25 a month and we'll give you, this one says five months of free Internet access with Pacific Bell Internet."

"You have the obvious hypocrisy of Pac Bell complaining about Internet use bringing the network down and then saying if you order a second telephone line for eleven bucks then you can have free Internet access for five months. So they're giving away a competitive service for free if you order regulated service for eleven bucks. They claim it's priced at half of what it actually costs them to deliver the service. So one has to be a little suspicious of what a monopoly can get away with in this world."

Lee Bauman, VP of local competition for Pacific Bell:

> "Yes, you are correct that the congestion issues are located at the offices to which the Internet access providers connect. Pacific Bell has about 680 central offices and about 60 of those offices cover about 90 percent of the Internet access concentration points where the Internet access providers connect."
>
> "And so, yes, it's at those offices where the connections occur that are the ones where we're spending most of the money in adding ports and trunks in and out of them. So it's very easy to isolate just what we're spending for the Internet access traffic volume issue as compared to the rest of the growth of the residents market itself."

Mike Trest:

> "... we can rebalance our exchange hot spots."
>
> "We should improve the ISP's regional and local cooperation with the local LECs in the technology issues. ISPs and LECs should be working together to better utilize the existing infrastructure, not just the switch path infrastructure, but also all other infrastructure types."

David LaPier

> "One interesting capability ... is a dial up virtual private network ... where access servers, modems and ISDNs are effectively provided on an out source basis. You move the modems closer to the subscriber. The dial component of the call ends and hence the switch, the inefficient use of the switching systems end earlier and traffic moves onto the packet switch networks sooner. Beyond the modem, the packet switch network can carry that traffic to enterprises and Internet service providers in a much more efficient manner with 10 to 1 or 20 to 1 improvement in band width."

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Distributed Internet Service Concentrators
(a.k.a. ISP retailers)

This is a simple, efficient proposal for reducing LEC voice network congestion resulting from long connect times of Internet users. It is a creative, entrepreneurial, grassroots solution that will rebalance exchange hot spots by moving answering modems closer to subscribers.

By utilizing existing frame relay infrastructure for concentrator upstream Internet links and POTS lines for downstream modem links to end users, LECs cooperating with home business entrepreneurs can reap the benefits of packet switched Internet traffic without costly upgrades to central office circuit switching facilities or end user equipment.

In at least two states served by BellSouth, the tariffs prescribe that BellSouth will permit up to 10 residential lines per account for home business use, yet charge the lower residential rates for those lines. Accordingly, home business owners there can use residential POTS lines to offer Internet connectivity to local modem callers by serving as an ISP retailer connected upstream via frame relay to a local ISP wholesaler.

Under the right conditions, this could promote small business and clean air, while helping LECs avoid circuit switch congestion by distributing ISP modems more evenly among telco central offices.

Sadly, however, it is economically unfeasible when aggregating only 10 lines. To become modestly profitable, analysis reveals that at least 50 lines must be aggregated, even at the lower residential rates.

The FCC can create powerful incentives by specifically exempting home business ISP retailers from any residential rate line count limits applied to other home businesses, thereby giving ISP retailers special status and allowing them no less than 50 and no more than 100 lines at residential rates. The upper limit of 100 will act to disperse ISP line clusters, and prevent home business ISP retailers from unfairly competing with larger ISPs who must pay business rates for lines.

This will promote universal service, because home business ISP retailers can profit in smaller markets where the large, higher cost structure ISPs cannot.

To extend this incentive as widely as possible, the FCC should specifically rule that regardless of state tariff provisions, bona fide home business ISP retailers in all states are eligible for no less than 50 and no more than 100 lines at residential rates, and are exempt from the $3.50 EUCL or SLC on those lines.

Some may wonder if this concept is workable when the POTS lines used by ISP retailers are not in a hunt group like the business lines of a large ISP. Even with an autodialer, modem callers may

not want to wait while the dialer tries each of 50 numbers in a series until finding one open, especially when a high percentage of lines are busy.

I have a ready plan for overcoming this technical obstacle.

Nearly everyone in the computer industry has heard of the Linux operating system. It's UNIX for the PC, freely available at no cost and with full source code at that. It was developed by a loosely knit team of programmers collaborating and sharing source code via the Internet, of course.

It's available on CD from a variety of distributors who sell it for the cost of media plus a small profit. After obtaining a copy, anyone is free to repackage the Linux source and binaries and redistribute it themselves. Although it may sound too good to be true, that's the method of distribution the authors specified when they copyrighted their source code and made it available.

As its development heritage would suggest, it is fully Internet capable with TCP/IP, FTP, SMTP, POP3, and many other networking programs and protocols found on commercial UNIX variants. It is also a fully capable IP router itself. A Linux user can install a frame relay adapter in the PC, connect to an upstream ISP, add a multiport serial adapter with a bank of modems, and open for business as a retail ISP.

Suppose that the upstream ISP, the wholesaler, also has a Linux PC. The two PCs can communicate via their dedicated frame relay connection. The ISP wholesaler will maintain a master database of all inbound dial numbers available to modem callers at all downstream ISP retailers. Whenever modems connect and disconnect at ISP retailers, the line status changes will be transmitted to the ISP wholesaler, and at any given moment, the ISP wholesaler will have an updated list of all lines open for calls at all ISP retailers.

Suppose also that the ISP wholesaler has small hunt group of 10 business lines. All modem callers who want to connect to an ISP retailer will configure their dialer software to call the single number of the hunt group at the ISP wholesaler. Upon connecting, the dialer software will perform a quick handshake with the ISP wholesaler to get the telephone number of an open line at an ISP retailer. After obtaining the number, the dialer software will immediately disconnect from the ISP wholesaler and then dial the open number at the ISP retailer, automatically without any input required from the user.

If the average modem call duration is an hour, and 15 seconds are required to complete the handshake, every line in the hunt group at the wholesaler can perform an average of 240 handshakes per hour. A wholesaler serving 30 retailers who have, on the average, 75 modem lines each will only need 10 lines in the hunt

group to support call requests for all 2,250 lines at the retail level. Under this system, no retail hunt groups are needed.

As the FCC says in the NOI:

> "We invite parties to identify means of addressing the congestion concerns raised by incumbent LECs, for example by deploying hardware to route data traffic around incumbent LEC switches, or by installing new high-bandwidth access technologies such as asymmetric digital subscriber line (ADSL) or wireless solutions ... We also strongly encourage interested parties ... to identify which technological solutions hold the greatest promise in carrying Internet traffic most efficiently and with the least adverse price impact on consumers."

While high technology, high cost solutions may have a role, my plan is a much lower cost solution for achieving the same result. In a population of 100,000 where 25% use the Internet, the well known ratio of 1 line per 10 Internet users gives 2,500 lines to support their use. Dividing that number by 50 to 100 lines per ISP retailer gives 25 to 50 ISP retailers, a sufficiently large number likely to be naturally dispersed among the various telco central offices serving that population.

LECs may object to residential rate pricing for home business ISP retailers on the asserted grounds that residential rates are subsidized. However, for an LEC with high fixed costs and large investments in technology, upgrading existing facilities is very expensive. Under the present system where substantial capital expenditures are required for upgrading central office switching facilities and interoffice trunking to alleviate circuit congestion resulting from the typical ISP clustering seen today,

these costs are unavoidable. But under my plan of dispersing and decentralizing ISP modem lines, such costs will be unnecessary. Avoidance of these costs will compensate for any reduction of revenue attributable to the difference between business and residential rates paid by ISP retailers, especially given the fact that in proportion to the population served, the number of lines used by ISP retailers will be relatively small.

Furthermore, when LECs compete for Internet subscribers, will they pay business rates for lines? And will they pay themselves the interstate access charges they claim that other ISPs should pay to them? How can LECs argue that residential rates would be too low for home business ISP retailers while LECs themselves pay nothing at all, because actually, any costs they show on paper are merely accounting allocations between divisions? And when LECs selling Internet access also gain additional revenue from every customer who installs a second line for their modem, what sustainable basis remains for denying residential rates to home business ISP retailers?

An LEC competing for Internet subscribers has no additional cost for inbound lines; the LEC simply intercepts the call right at their switch, totally avoiding the costs of modem lines paid by all non-telco ISPs. This gives incumbent LECs enormous monopoly power against ISP competitors. To prevent incumbent LECs from leveraging this power to gain a dominant position in the local ISP market, the FCC should rule without hesitation, prohibiting

them from offering Internet access for a period of 5 years or until their local market meets the competitive guidelines freeing them from regulation.

The FCC now stands in a unique position at a critical time in history. By ruling in harmony with this petition, the FCC can create and protect a cottage industry of ISP retailers who work at home, thereby fostering national policies of clean air and universal Internet access. Because of their small size and neighborly appeal, ISP retailers will remain close and accessible to those who will need help accessing the Internet and harnessing its power. This is a vital prerequisite for rapidly delivering Internet access to the people and extending its power from large corporations to individual citizens. Only then can the United States, the government of the people, realize the true democratic potential of the Internet.

Restatement of PETITION FOR RULE MAKING:

1. Local and/or state tariffs and/or statutes notwithstanding, bona fide home business ISP retailers are eligible for no less than 50 and no more than 100 telephone lines billed at residential rates, and are exempt from the $3.50 EUCL or SLC on those lines.

2. LECs with more than 50,000 subscriber lines are prohibited from offering Internet access, either directly or through subsidiaries and/or affiliates, for a period of 5 years or until their local market meets the competitive guidelines freeing them from regulation, whichever is greater. Such LECs already serving Internet customers may continue, but under this prohibition, no new customers are permitted.

John Kelly
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